

REMARKS

This is in Response to the Communication mailed June 16, 2003, in which the Examiner imposed a two-way restriction on the above-identified application. Claims 1-2 and 4-16 were identified as a first invention (Invention I) drawn to a spin-valve sensor. Claim 17 was identified as a second invention (Invention II) drawn to a method of manufacturing a spin valve sensor. Applicant hereby elects, [with traverse], to prosecute Invention I (claims 1-2 and 4-16).

Inventions I and II identified by the Examiner were found to be related as a product and a method of making the product. The Examiner found that the product of Invention I could be made by another and materially different process. In particular, the Examiner found that the product could be made without the setting step (e) described in claim 17. However, the Examiner provided no explanation as to what materially different process could be used to form the product. Accordingly, Applicant respectfully believes that the restriction is improper.

Even so, Applicant has amended claim 17 to eliminate the setting step (d), which is now described in new claim 18. Applicant respectfully submits that the Examiner's position that the product as claimed (Invention I) could be made without requiring the setting of the bias fields of the first and second AFM layers simultaneously is rendered moot in light of the amendment to claim 17. Accordingly, Applicant believes that Inventions I and II are not distinct, and requests reconsideration and withdrawal of the restriction.

The Director is authorized to charge any fee deficiency required by this paper or credit any overpayment to Deposit Account No. 23-1123.

Respectfully submitted,

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MARKED-UP VERSION OF REPLACEMENT CLAIMS

17. (Amended) A method of manufacturing a spin valve sensor for use with a data storage system to produce a giant magnetoresistive (GMR) effect in response to applied magnetic fields, the method comprising steps of:
- (a) forming a first ferromagnetic (FM) free layer having a magnetization ( $M_1$ ) in a first direction when in a quiescent state;
  - (b) forming a second FM free layer having a magnetization ( $M_2$ ) in a second direction that is anti-parallel to the first direction when in a quiescent state;
  - (c) forming a spacer layer between the first and second FM free layers; and
  - (d) forming first and second anti-ferromagnetic (AFM) layers on the first and second FM free layers, respectively; the first and second AFM layers each producing a bias magnetization field that respectively biases  $M_1$  and  $M_2$  in a third direction that is transverse to the first and second directions ~~having substantially equivalent anneal temperatures,~~
  - (e) ~~setting bias fields of the first and second AFM layers simultaneously by cooling the first and second AFM layers through the anneal temperature while applying a magnetic field in a third direction that is transverse to the first and second directions.~~

Claim 18 has been added by Amendment.